

REMARKS

The above-identified application has been carefully reviewed in light of the Examiner's communication mailed December 20, 2002. Submitted herewith is a Request for Extension of Time, and required fee, extending the period for responding to the Examiner's communication to and including April 20, 2003.

Claims 1, 2, 9 to 16, 18, 32, 33 and 38 have been amended to more clearly set forth and define the present invention, and to address certain of the issues raised by the Examiner under 35 U.S.C. 112, second paragraph. Claims 17, 24, 25 and 34 have been canceled, without prejudice. New claims 41 to 58 have been added and are directed to embodiments for which patent protection is sought. Each of these amendments and new claims is fully supported by the present specification.

In view of the above amendments, applicant respectfully requests that the rejections of claims 9 to 11, 12, 13 to 15, 18 and 25 under 35 U.S.C. 112, second paragraph, be withdrawn.

Claims 2, 3 and 16 have been rejected under 35 U.S.C. 112, second paragraph. Applicant traverses this rejection.

The Examiner states that the phrase "combinations thereof and mixtures thereof" is unclear. The phrase, as used in the present claims, relates to Markush groups of materials which can be used in combinations, such as composites, laminates and the like, of two or more such materials, or which can be used in mixtures, such as a uniform mixture of two or more polymeric materials, an alloy of two or more metals, and the like. In the context of the present claims, combinations are different from mixtures. The materials recited in the present claims can be used in combinations and/or mixtures.

applicant respectfully requests that the rejections of the present claims based on this statutory provision be withdrawn.

Claims 1 to 25, and 32 to 40 have been rejected under 35 U.S.C. 102(b) as being anticipated by Hudgens et al '799. Applicant traverses this rejection as it pertains to the present claims.

Independent claim 1 is directed to containers for releasing a chemical additive into a liquid fuel composition. The containers comprise a casing, a fuel additive composition and at least one fuel-permeable element.

The casing defines a fuel-impermeable wall structure, a substantially hollow interior and at least one opening in the wall structure. The fuel additive composition is provided in the interior of the casing and comprises a chemical additive soluble in the liquid fuel composition. The at least one fuel-permeable element is provided at or substantially directly adjacent the at least one opening of the casing and is structured to be effective to provide for release of the chemical additive into the liquid fuel composition when the liquid fuel composition is in contact with the casing. The element comprises at least two different components selected from a porous member, a semi-permeable member, and an at least partially fuel-soluble seal. Each of the components of the fuel-permeable element initially extends substantially across the at least one opening.

Methods for releasing a chemical additive at a sustained rate into a fuel composition are recited in claims 16 to 31. Such methods comprise placing the containers as described above in contact with the fuel composition.

Independent claim 32 is directed to a seal assembly comprising

casing defining a hollow interior containing a fuel additive soluble in a fuel composition. The membrane is structured to be positioned so that substantially all of the fuel additive leaving the hollow interior through the opening passes through the membrane. The at least partially fuel-soluble seal member is sized and structured to be positioned relative to the opening in the casing to prevent fuel additive leaving the hollow interior through the opening when the seal member is intact.

Independent claim 38 is directed to a fuel-permeable assembly comprising a fuel-permeable membrane and at least one retention member. The fuel-permeable membrane is sized, structured and positioned as described previously. The at least one retention member is defined as being other than the casing, and being sized and structured to be positioned to be effective in retaining the fuel-permeable membrane in a substantially fixed position relative to the casing, for example, in or substantially directly adjacent an opening of the casing.

The present containers provide for effective release, preferably sustained release, of chemical additive into a liquid fuel compositions. The positioning of the fuel-permeable element at or substantially directly adjacent the opening in the casing provides for such effective additive release in a space effective manner. Thus, the size of the present containers can be advantageously reduced relative to conventional fuel additive release systems.

In addition, the inclusion of a fuel-permeable element including at least two components selected from a porous member, a semi-permeable member and an at least partially fuel-soluble seal provides substantial performance flexibility and effectiveness

permeable member. See page 13 of the present specification. The fuel additive release characteristics of the present containers can be very effectively controlled using both porous and semi-permeable members. Moreover, the presence of an at least partially fuel-soluble seal protects the fuel additive during shipment and storage of the container and, in addition, can advantageously be used to delay the initial release of the additive into the fuel, if desired.

The present seal assemblies and fuel permeable assemblies, as recited in claims 32 to 40, can be employed in the present containers and provide or facilitate one or more of the advantages set forth above. For example, the fuel-permeable membranes recited in each of these claims are sized and structured to be positioned in or substantially directly adjacent an opening in a casing. As discussed above, this feature is advantageous, for example, in reducing the size of containers used to release given amounts of fuel additives into fuel compositions.

Hudgens et al '799 discloses a coolant filter that filters the coolant and releases an amount of a coolant additive through a diffusion tube or, alternately, through a diffusion wafer, into the coolant. The Examiner states that Hudgens et al '799 discloses a container having a cylindrical shape or a bowl shaped casing defining a hollow interior inlets and outlets, coolant permeable elements coated with an outer coating that is porous and fuel permeable. In addition, the Examiner states that Hudgens et al '799 discloses diffusion elements or a diffusion orifice, a filter element, end plates, and a porous membrane retention member between the end plates that anticipate the claimed container, seal assembly and fuel-permeable assembly.

suggest the present invention. For example, Hudgens et al '799 does not specifically disclose, teach or even suggest a container for releasing a chemical additive into a liquid fuel composition including a fuel-permeable element provided at or substantially directly adjacent an opening of a casing, as recited in the present claims. To the contrary, Hudgens et al '799 discloses a substantial space between the outlet 32 and the diffusion element 72. In addition, Hudgens et al '799 does not specifically disclose, teach or even suggest a fuel-permeable element which comprises at least two components selected from a porous member, a semi-permeable member, and an at least partially fuel-soluble seal, as recited in the present container claims.

Further, Hudgens et al '799 discloses coolant filters and coolant additives and does not specifically disclose or suggest containers, methods and assemblies for releasing fuel additives in fuels, as recited in the present claims.

The Examiner contends that claim 1 is directed to an apparatus claim, and that the fuel additive does not form a part of the apparatus. Applicant vigorously disagrees.

Claim 1 is directed to a container and specifically includes:

"a fuel additive composition provided in the interior of said casing, said fuel additive composition comprising a chemical additive soluble in a liquid fuel composition."

Thus, the fuel additive composition is clearly positively recited as a part of the claimed apparatus. As such, the fuel additive composition must be considered in determining the patentability of the claimed apparatus. Since Hudgens et al '799 does not

present container claims from Hudgens et al '799.

In view of the above, applicant submits that the present claims, in particular claims 1 to 16, 18 to 23, 32, 33 and 35 to 40, are not anticipated by and are unobvious from and patentable over Hudgens et al '799 under 35 U.S.C. 102(b) and 103(a).

Claims 1, 2, 4, 5, 12 to 14, 16 to 18, 20, 26, 27, 30 and 31 have been rejected as being anticipated by Wright under 35 USC 102(b). Claims 1, 2, 4, 5, 26 and 27 have been rejected under 35 USC 102(b) as being anticipated by (1) Thunker et al '557; (2) Thunker et al '217; (3) Beavans; (4) Brooks; and (5) Makino et al. Claims 1, 2, 4, 5, 26 and 27 have been rejected by Arroyo et al under 35 U.S.C. 102(b). Applicant traverses each of these rejections as it pertains to the present claims.

None of Wright, Thunker et al '557, Thunker et al '217, Beavans, Brooks, Makino et al and Arroyo et al disclose, teach or suggest the present invention. For example, none of these patents disclose, teach or even suggest containers for releasing a chemical additive into a liquid fuel composition in which a fuel-permeable element is provided at or substantially directly adjacent an opening of the casing of the container, as recited in claim 1, or methods for releasing a chemical additive at a sustained rate into a fuel composition comprising placing the present containers in contact with the fuel composition, as recited in claims 26 to 31.

Independent claim 1 has been amended to recite that the at least one fuel permeable element is provided at or substantially directly adjacent the at least one opening of the casing and comprises at least two different components selected from a porous member, a semi-permeable member, and an at least partially fuel-soluble seal positioned such that each of the components initially

the mild steel mesh disc in the two-part container. In contrast, the present containers provide that the fuel-permeable element is positioned at or substantially directly adjacent the opening of the casing. In addition, Wright does not disclose or even suggest a fuel-permeable element comprising at least two different components selected from a porous member, a semi-permeable member and an at least partially fuel-soluble seal, as recited in the present claims.

In view of the above, applicant submits that the present claims, and in particular claims 1, 2, 4, 5, 12 to 14, 16, 18, 20, 26, 27, 30 and 31, are not anticipated by and are unobvious from and patentable over Wright under 35 USC 102(b) and 103(a).

In addition, independent claim 1 has been amended to include subject matter substantially similar to that of certain of the original claims which have not been rejected based on any of Thunker et al '557, Thunker et al '217, Beavans, Brooks, Makino et al and Arroyo et al. See, for example, the at least partially dissolvable seal of original claim 9, the porous membrane of original claim 13, and the semi-permeable membrane of original claim 17.

Simply put, Thunker et al '557, Thunker et al '217, Beavans, Brooks, Makino et al, and Arroyo et al do not disclose, teach or even suggest the containers and methods of using such containers recited in any of the present claims. In addition, none of these patents even suggest the seal assemblies and fuel-permeable assemblies recited in claims 32 to 40. Further, none of these patents even suggest or recognize the advantages of the present invention, for example, as described above, achieved by applicant.

In view of the above, applicant submits that the present

Arroyo et al, taken singly or in any combination, under 35 USC 102(b) and 103(a).

Claims 26 to 31 have been rejected under 35 USC 103(a) as being unpatentable over Makino et al or Beavans in view of Hudgens et al and Mitchell et al. Applicant traverses this rejection.

As noted above, claims 26 to 31 are directed to methods of releasing a chemical additives at a sustained rate into a fuel composition comprising placing the present containers in contact with the fuel composition.

Mitchell et al discloses a controlled release supplemental coolant additive for use in diesel engine coolant systems comprising a core and a polymeric coating material encapsulating the core.

Mitchell et al does not disclose, teach or suggest the present invention. For example, Mitchell et al does not disclose, teach or even suggest, and has absolutely nothing to do with, releasing fuel additives at a sustained rate into a fuel composition, as recited in the presently rejected method claims.

As noted above, none of the other references cited by the Examiner specifically disclose, teach or even suggest the present containers, let alone the methods of releasing a chemical additive at a sustained rate into a fuel composition employing such containers, as recited in the presently rejected method claims. Clearly, Mitchell et al does not supply the deficiencies apparent in the teachings of the other references.

In view of the above, applicant submits that the present claims, and in particular 26 to 31, are unobvious from and patentable over Makino et al or Beavans et al in view of Hudgens et al and Mitchell et al under 35 USC 103(a).

the new independent container claims 41, 48 and 52. For example, none of the prior art, alone or in any combination, specifically disclose, teach or even suggest an at least partially fuel-soluble seal positioned so that the seal initially extends across the opening of the casing as recited in new claim 41; or a fuel-permeable element provided at or substantially adjacent the opening of the casing and comprising a component including a porous member and/or a semi-permeable member and at least one retention member, other than the casing, structured and positioned to maintain the component in an substantially fixed position relative to the casing, as recited in new independent claim 48; or a container including at least two spaced-apart openings and fuel-permeable members provided at or substantially directly adjacent each of these two openings of the casing and being structured to be effective in controlling release of a fuel additive into the liquid fuel in contact with the casing, as recited in new independent claim 52.

In view of the above, applicant submits that new independent claims 41, 48 and 52 are not anticipated by and are unobvious from and patentable over the prior art under 35 U.S.C. 102(b) and 103(a).

Since the containers of claims 41, 48 and 52 have been shown to be patentable over the prior art, applicant submits that the present method claims 56 to 58, which are directed to methods of releasing chemical additive at a sustained rate into a coolant composition comprising using such containers, are also patentable over the prior art.

Each of the dependent claims is separately patentable over the prior art. For example, none of the prior art, taken singly or in

of the present claims is separately patentable over the prior art.

In conclusion, applicant has shown that the present claims satisfy the requirements of 35 U.S.C. 112, second paragraph, and are not anticipated by and are unobvious from and patentable over the prior art under 35 U.S.C. 102 and 103. Therefore, applicant submits that claims 1 to 16, 18 to 23 and 26 to 33 and 35 to 58 are patentable over the prior art. Therefore, applicant respectfully requests the Examiner to pass the above-identified application to issuance at an early date. Should any matters remain unresolved, the Examiner is requested to call (collect) applicant's attorney at the telephone number given below.

Respectfully submitted,



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